

INTER-PANEL HERMETIC SEAL

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention generally relates to movable or removable closures and more specifically to a closure seal, such as a striker gasket or weatherstrip that interengages sections on closures or on closure and portal frame, or that encloses or is carried by a closure edge surface, or wherein a U-shaped member or portion mounts the seal. Specifically, the invention relates to a hermetic seal for the hinge-edge side of a door.

2. Description of the Prior Art

The exterior door in commercial construction carries a weather seal in order to prevent or limit the infiltration of outside air. This seal may take any of several popular forms. Often, the floor edge of a door will carry a labyrinth seal that engages the doorsill. In addition, the floor edge may carry a felt tongue or lip that brushes the floor to better seal the threshold. All remaining edges of the door employ seals that are active only when the door is closed. These edge seals may be formed of spring metal, plastic ribs, foam or felt strips, brushes, or other devices that compress against the door frame or jamb when the door is closed.

While these seals may be effective when properly in place, it is seldom evident whether they continue to work properly. Since these seals' operation is limited to times when a door is closed, one must inspect the door quite closely to determine whether the fit is proper and whether the seals have remained intact. Indeed, many doors become slightly warped and thereafter fail to fully close against a previously installed seal. Also, over time many types of seal lose their integrity due to physical damage, shrinkage, or loss of flexibility. Because the failure of door seals may not be readily evident, these problems can lead to long term air infiltration and unnecessary heating and cooling costs. Thus, it would be desirable to have weather seals that can be known to be in good operation by even casual inspection. Further, it remains desirable to improve the efficiency of weather seals. Also, it would be beneficial to have weather seals that operate over an extended range of door positions, including when a door is partially or fully open.

Various patent art shows guards that are applied at the hinge-edge of a door. For example, U.S. Pat. No. 4,040,142 to Ippolito relates to a bellows that covers the hinge opening of a door for safety purposes.

U.S. Pat. No. 2,694,234 to Roby et al discloses a finger guard that covers the hinge edge of a swinging door to prevent pinching a finger in the hinge crack.

U.S. Pat. No. 1,444,398 to Shepherd discloses a hinge guard that was intended to keep fingers out of the door crack of vintage automobiles.

Swiss Pat. No. 133,401 discloses a metal filler device that fits inside the hinge gap of a door to strengthen the frame and create a close fit.

These patented devices, in carrying out their purposes of safety and close fit, may provide a peripheral reduction against drafts at the hinge-edge of a door. However, they are of limited efficiency, since they provide only simple blocks against air passage. A good weather seal should provide additional protection against air convection, which can lead to considerable heat loss when acting through a thin-walled seal. In

addition, a seal should in a protected area, such as entirely within the hinge gap.

To achieve the foregoing and other objects and in accordance with the purpose of the present invention, as embodied and broadly described herein, the hermetic weather seal and method of application of this invention may comprise the following.

SUMMARY OF THE INVENTION

Against the described background, it is therefore a general object of the invention to provide an active, unbroken barrier inside the gap between juxtaposed panels, such as on the hinge side of a door.

Another object is to provide an unbroken seal between adjacent panels, in which the thermal gradient is reduced within the seal itself.

A further object is to provide a hinge-edge door seal that is effective over an extended range of conditions, including times when the door is open or ajar, and with doors that may be come warped or are ill-fitting.

A more specific object is to provide a weather seal for the hinge-edge of a door, whose operation and integrity are readily apparent and confirmed at a glance.

Still another object is to provide a seal for use between closures and other panels, that is extremely simple in construction and installation, as well as inexpensive.

Additional objects, advantages and novel features of the invention shall be set forth in part in the description that follows, and in part will become apparent to those skilled in the art upon examination of the following or may be learned by the practice of the invention. The object and the advantages of the invention may be realized and attained by means of the instrumentalities and in combinations particularly pointed out in the appended claims.

According to the invention, a hermetical seal closes in an inter-panel gap between first and second juxtaposed panel members. The seal is formed of a longitudinally elongated strip of sheet material having first and second faces and having a predetermined width defined by opposite longitudinally extending side edges. The strip has a first longitudinally elongated attachment area carrying on its first face a first adhesive band generally adjacent one of its longitudinal side edges for, in use, adhering the sheet material to a side edge of a first panel member. The strip also has a second longitudinally elongated attachment area carrying on its first face a second adhesive band generally adjacent to a second and opposite one of its longitudinal side edges for, in use, adhering the sheet material to a side edge of a second panel member spaced from the first panel member. The strip of sheet material further includes a longitudinally elongated barrier portion located between the first and second attachment areas.

The accompanying drawings, which are incorporated in and form a part of the specification illustrate preferred embodiments of the present invention, and together with the description, serve to explain the principles of the invention. In the drawings:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an end view of the hinge-edge of a door and jamb with the door in fully open position, showing the hermetical seal in place.

FIG. 2 is a top view of the seal, door and jamb of FIG. 1.